

ABSTRACT OF THE DISCLOSURE

A method of forming a magnetic tunneling junction (MTJ) layer for an MRAM includes sequentially forming a lower material layer, an insulation layer, and an upper material layer on a substrate, forming a mask pattern on a predetermined region of the upper material layer, sequentially removing the upper material layer, the insulation layer, and the lower material layer from around the mask pattern using plasma generated from an etching gas, wherein the etching gas is a mixture of a main gas and an additive gas having a predetermined mixture ratio and including no chlorine (Cl_2) gas, and removing the mask pattern. Accordingly, an MTJ layer formed by the method may incur no thermal damage due to high temperature etching, no material deposits due to by-products of etching, and no step difference or corrosion due to chlorine gas, and may have an excellent profile.